WHAT IS CLAIMED IS:

1. An electroholographic switch, having:

an electro-optic crystal, in which an electrically controlled Bragg grating is stored, said electrically controlled Bragg grating being operable to deflect an incoming beam, which meets Bragg's condition for said grating, when an external electric field is applied to said crystal; and

a power supply, for providing said external electric field,

the improvement comprising permanently storing said electrically-controlled Bragg grating in said electro-optic crystal as periodic striations, produced as a concentration grating, during a growth process of said electro-optic crystal.

2. The electroholographic switch of claim 1, and further including a component of Bragg grating, operable in the absence of an electric field.

3. The electroholographic switch of claim 1, operable at a temperature range of between about 10 and about 80 degrees centigrade.

4. The electroholographic switch of claim 1, capable of withstanding storage temperature as high as 300 degrees centigrade.

5. The electroholographic switch of claim 1, and further including a temperature-control device, for maintaining said electro-optic crystal at a predetermined temperature.

6. The electroholographic switch of claim 5, wherein said predetermined temperature is within ± 3 degrees centigrade of a curie temperature of said electro-optic crystal.

7. The electroholographic switch of claim 5, wherein said predetermined temperature is between about 1 and about 5 degrees centigrade above of a curie temperature of said electro-optic crystal.

8. The electroholographic switch of claim 5, wherein said predetermined temperature is above of the Curie temperature of said electro-optic crystal.

9. The electroholographic switch of claim 1, wherein said concentration grating creates a grating in the phase transition temperature, T_c, which at the paraelectric phase, yields a grating in the dielectric constant.

10. The electroholographic switch of claim 9, wherein said grating in the phase transition temperature, T_c, has an amplitude of between about 0.1 degrees and about 2 degrees K.

11. The switch of claim 1, wherein said concentration grating has a period spacing of between about 0.1 and about 20 μm.

12. The electroholographic switch of claim 1, wherein said electro-optic crystal is KTN, and said concentration grating is formed by changes in concentration between niobium and tantalum.

13. The electroholographic switch of claim 1, wherein said electro-optic crystal is KLTN, and said concentration grating is formed by changes in concentration between niobium and tantalum.

14. The electroholographic switch of claim 1, wherein said electro-optic crystal is KLTN, and said concentration grating is formed by changes in concentration between lithium and potassium.

15. The electroholographic switch of claim 1, wherein said electro-optic crystal is KLTN, and said concentration grating is formed by changes in concentrations of niobium, lithium, and potassium.

16. The electroholographic switch of claim 1, wherein said electro-optic crystal is KNTN, and said concentration grating is formed by changes in concentration between sodium and potassium.

17. The electroholographic switch of claim 1, wherein said electro-optic crystal is KNTN, and said concentration grating is formed by changes in concentration between niobium and potassium.

18. The electroholographic switch of claim 1, wherein said electro-optic crystal is KNTN, and said concentration grating is formed by changes in concentrations of niobium, sodium, and potassium.

19. The electroholographic switch of claim 1, wherein said electro-optic crystal is selected from the group consisting of SBN and BST.

20. The electroholographic switch of claim 1, wherein said external electric field is 0 and 5kV/cm.

21. The electroholographic switch of claim 1, selected from the group consisting of a wavelength selection switch and a switch for different angles of incidence.

22. An electroholographic switch, having:

an electro-optic crystal, in which a Bragg grating is stored as periodic striations, produced as a concentration grating during the growth process of said electro-optic crystal; and

a power supply, in communication with said crystal, for providing an external electric field, to selectively detune said Bragg grating.

23. An electroholographic switch, having:

an electro-optic crystal, in which a Bragg grating is stored as periodic striations, produced as a concentration grating during the crystal-growth process of said electro-optic crystal; and

a power supply, in communication with said crystal, for providing an external electric field, to selectively tune said Bragg grating.

24. A method of permanently storing an electrically-controlled Bragg grating in an electro-optic crystal, comprising:

determining a birefringence grating, for a particular application;

determining a concentration grating, which will yield said birefringence grating;

growing said electro-optic crystal at a periodic modulation in the growth temperature, to produce said concentration grating.

25. The method of claim 24, and further including growing said electro-optic crystal at a cooling rate of between about -0.1 and about -1.0 degrees centigrade per hour.

26. The method of claim 25, wherein said periodic modulation in the growth temperature is produced by a periodic modulation of said cooling rate.

27. The method of claim 24, and further including growing said electro-optic crystal at a pulling rate of between about 0.1 and about 1.5 mm per hour.

28. The method of claim 27, wherein said periodic modulation in the growth temperature is produced by a periodic modulation of said pulling rate.

29. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by a periodic heating of said electro-optic crystal, using heating elements.

30. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by stirring a growth solution.

31. The method of claim 30, and further including cyclically changing the direction of said stirring.

32. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by rotating a growth crucible, when at a center position.

33. The method of claim 32, and further including cyclically changing the direction of said rotating.

34. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by rotating a growth crucible, when at an off-center position.

35. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by rotating said crystal, when at a center position.

36. The method of claim 35, and further including cyclically changing the direction of said rotating.

37. The method of claim 24, wherein said periodic modulation in the growth temperature is produced by rotating said electro-optic crystal, when at an off-center position.

38. The method of claim 24, wherein said periodic modulation in the growth temperature is varied between every 10 and every 30 seconds.

39. The method of claim 24, wherein said periodic modulation in the growth temperature is varied between every 10 and every 300 seconds.

40. The method of claim 24, wherein said periodic modulation in the growth temperature further including a pause of between 1 and 15 seconds between modulation cycles.

41. A method of permanently storing an electrically-controlled Bragg grating in an electro-optic crystal, comprising:

determining a concentration pattern, for a particular application;

growing said electro-optic crystal at a periodic modulation in the growth temperature, to produce said concentration pattern.